

**ON THE IDENTIFICATION OF
DORYCTES ERYTHROMELAS
(HYMENOPTERA: BRACONIDAE)^{1,2}**

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ABSTRACT: Males from a central Texas population of the braconid parasitoid *Doryctes erythromelas* were found to differ from previous characterizations of this species. The possibility that a cryptic species exists is discussed, and variation in males and females from central Texas is described.

During investigations of internal morphology of members of the family Braconidae, we collected numerous males and females of a species of *Doryctes* Haliday from around wood-piles in Lick Creek Park, College Station, Texas during September 1987. We determined these as *Doryctes erythromelas* (Brullé), but observed that males did not precisely fit the characterization of this species provided by Marsh (1969). A series of males and females was sent to Dr. Paul Marsh, and he confirmed that all the material was indeed *D. erythromelas*. *Doryctes erythromelas* is widely distributed in North America (Marsh 1969), and has been frequently reared from beetle-infested logs (Hopkins 1892, Chittenden 1893, Blackman and Stage 1924, Beal and Massey 1945, Shenefelt and Marsh, 1976). Since the only available specific key to males fails to permit correct identification of males from central Texas, we provide here a partial redescription to rectify the situation.

Males from College Station, Texas, always have the ninth abdominal sternum acutely pointed anteriorly (Fig. 1) rather than "broadly rounded or truncate" (Marsh 1969). This was confirmed by the dissection of 35 males. We were unable to find any specimens with the base broadly rounded, though slight variation in the number and position of setae was observed. Although the overall shape is relatively stable, one specimen had the basal portion distinctly narrower and slightly longer than in the others. Males of *D. erythromelas* with an acutely pointed ninth sternum run to couplet 4 of Marsh's (1969) key. Couplet 4 offers the following choice of characters: "Forewings mottled, although weakly so" or "Forewings not mottled, hyaline or evenly and lightly infuscated". The fore wings of *D. erythromelas* are uniformly dark brown except for two small transparent areas near

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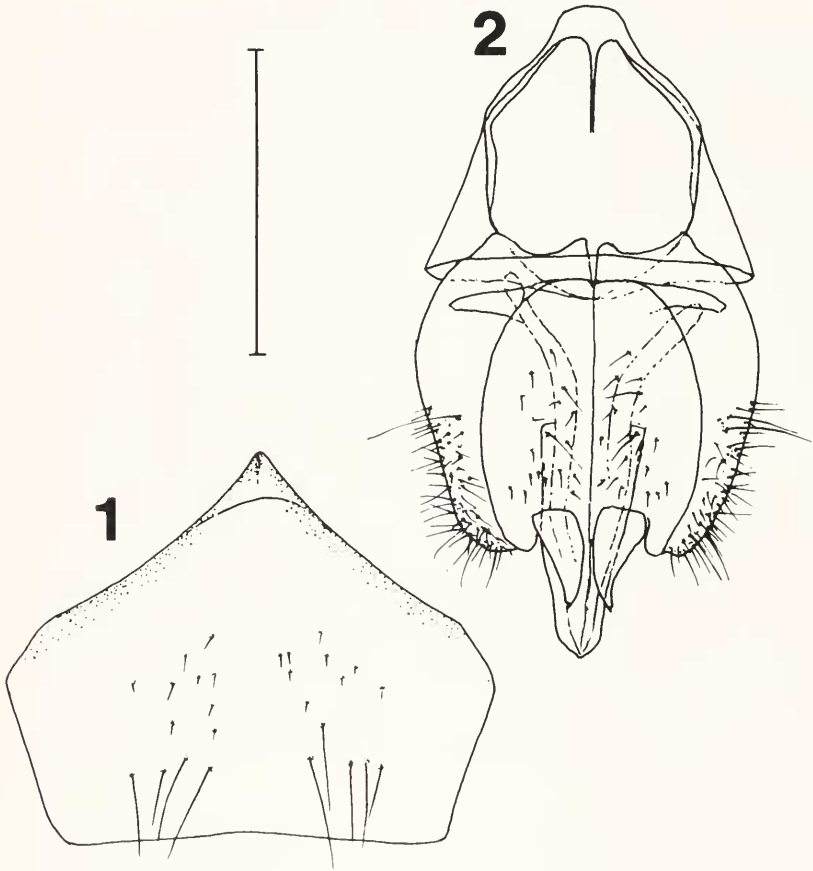
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poorly formed veins, and thus fit neither alternative.

In addition to the shape of the 9th abdominal sternum, the College Station specimens of *D. erythromelas* differ from the figures and descriptions of that species provided by Marsh (1965, 1969) in two other ways. Firstly, the basal ring of the male genitalia (gonobase) does not agree well with that illustrated in Figure 66 of Marsh (1965) in that it is distinctly produced mid-anteriorly forming an apically obtuse gonocondyle (Fig. 2) rather than being formed into a simple point. Secondly, the second segment



Figs. 1, 2. *Doryctes erythromelas* male from College Station Texas. 1, 9th abdominal sternum; 2, genitalia, dorsal aspect. Scale bar = 0.3mm.

of the mediella of the hind wing is considerably longer than the basella (mean = 1.53x; S.D. = 0.14; range = 1.21-1.72; n = 21) whereas Marsh (1969) describes the second segment of the mediella as being "usually equal to basella, occasionally slightly longer".

Females collected from the same locality were variable in two characteristics used in keys and descriptions (Marsh 1969) to distinguish the species of *Doryctes*. The penultimate segment of the maxillary palp varied from 1.1-1.5 (n = 10) times the length of the first flagellomere. Most specimens fell within a range of 1.1-1.3. The hind coxa of most specimens in this population were also rugulose dorsally, but this feature was noticeably size-dependent, with smaller individuals often having the coxa entirely smooth or nearly so. As is apparently characteristic of the genus, the hind coxa is produced anterior-ventrally to form a sharp tubercle in this species. The material examined also differs from many of the other Nearctic *Doryctes* in having the setosity of the median mesonotal lobe considerably reduced.

At this time, we do not think that the available evidence warrants segregation of the central Texas material with the anteriorly acute ninth sternum as a separate species. In the absence of character states to permit separation of females of the central Texas form from typical ones, identification of a cryptic species based on male characters would pose a difficult taxonomic problem as only one of the six junior synonyms of *D. erythromelas* is based on a male specimen. Nevertheless, the possibility that *erythromelas* includes two or more cryptic species cannot be disregarded. We therefore urge future workers to include details of the above characters and/or voucher specimens when publishing on this species in order to minimize the likelihood of confusing any possible cryptic species.

Material from this study is deposited as voucher number 274 in the Texas A&M University Insect Collection. Additional material is in the senior author's collection.

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BOOKS RECEIVED AND BRIEFLY NOTED

PHEROMONE BIOCHEMISTRY. G.D. Prestwich & G.J. Blomquist, eds. 1987. Academic Press. 565 pp. \$85.

A compilation of 15 chapters by authors in the fields of pheromone chemistry, glandular & antennal morphology neurobiology, and biochemistry. Book is divided into two major sections: 1) pheromone production and its regulation in female insects, and 2) reception, perception, and degradation of pheromones by male insects.

THE MAYFLIES OF FLORIDA (Revised Edition). L. Berner & M.L. Pescador. 1988. Univ. Presses of Florida 416 pp. \$35.

A complete revision and updating of the original 1950 edition. Includes identifications, new keys to nymphs and adults, distribution, ecology, life histories and all other currently available data on Florida mayflies.

INSECT-EATING PLANTS & HOW TO GROW THEM. A. Slack. 1988 (ppbk ed.) Univ. of Washington Press. 172 pp. \$19.95 ppbk.

Of possible peripheral interest to entomologists,, this book is primarily of interest to horticulturalists, nurserymen, and botanical gardeners. Descriptions and biology are brief. The main emphasis is on cultivation of these interesting plants.

INTERINDIVIDUAL BEHAVIORAL VARIABILITY IN SOCIAL INSECTS. R.L. Jeanne, ed. 1988. Westview Press. 456 pp. \$39.85 ppbk.

A compilation of 14 chapters representing empirical studies on some aspect of the phenomenon of individual variability in the behavior of social insects. These illustrate the range of ways individual members of a colony can differ from one another and interpret this variability in terms of the external environment, social context, or individual experience.

CATALOGUE OF PALAEARCTIC DIPTERA. Vol. 5. Athericidae - Asilidae. A. Soos, & L. Papp, eds. 1988. Elsevier Science Publishers. 446 pp.

Another volume in the continuing Catalogue which ultimately will include the taxonomic, nomenclatural, and distribution data of some 25,000 species in some 132 Diptera families.